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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/492,590	01/27/2000	Carsten-Peter Cartens	41114/85530	1053

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EXAMINER	
LEFFERS JR, GERALD G	

ART UNIT	PAPER NUMBER
1636	19

DATE MAILED: 03/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/492,590	Applicant(s) CARTENS, CARSTEN-PETER	
	Examiner Gerald Leffers	Art Unit 1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/9/01* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Receipt is acknowledged of an information disclosure statement (IDS) and supplemental information statement, filed 7/12/01 and 1/15/02 (Paper Nos. 13 and 18, respectively). The corresponding PTO Form 1449s have been mailed with this action. Receipt is also acknowledged of a supplemental declaration filed by Mary Buchanan under Rule 1.132. A declaration filed by Carsten-Peter Carstens under Rule 1.131 has also been received. Finally, receipt is acknowledged of applicant's amendment, filed 11/9/02 as Paper No. 17, in which several changes to the specification were made and in which new arguments were presented. No changes to the claims were made in Paper No. 17.

Any rejection of record not addressed in this action has been withdrawn. Claims 1-16, 18-44 are pending in this application. This action is FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 and 18-44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This rejection is maintained for reasons of record in Paper No. 12, mailed 5/9/01. Applicant's arguments filed in Paper No. 17 have been fully considered but they are not persuasive.**

Response to Arguments

Applicant's response essentially argues: 1) the specification and the claims as filed clearly set forth the invention in a manner such that one of skill in the art is on notice that applicant had possession of the full scope of the claimed invention at the time of filing, 2) the specification describes a number of different cells that can be used in the invention as well as working examples directed towards prokaryotic cells, 3) the examiner provides no reason to believe the invention could not be practiced in any cell type that is transfectable, 4) the examiner has acknowledged that differences in codon usages are well known in the art, and it is asserted that what must be described is the manner in which knowledge of codon usages would be used in the invention, 5) the law does not require that a patent specification teach each and every embodiment falling within a given claim in detail, but only a representative number of species and the specification teaches 5 specific tRNA genes, 6) the prior art teaches numerous tRNA genes, 7) codon usages were known in the art and one skilled in the art can readily envision and generate a construct that expresses and array of three or more cloned tRNA genes from a given species.

With regard to the assertion that there is no requirement under the law that every embodiment of an invention must be described, at no point has the examiner stated or implied that each and every embodiment of the claimed invention must be described. The entire rejection has been made in terms of a sufficient number of representative embodiments to describe a broadly claimed genus. The 5 specific tRNAs described in the specification are not sufficient to describe the broadly claimed genus of tRNAs corresponding to rarely used codons.

The assertion that what must be described is the manner in which knowledge of codon usage would be used in the claimed invention is inaccurate. As was made clear in the previous action, the critical elements of applicant's invention are the tRNA genes corresponding to rarely used codons on the claimed vectors which are determined by the combination of host cell type (i.e. rarely used codons), the corresponding tRNA genes and the protein to be expressed. The issue of describing how the invention is to be used has more to do with enablement. Likewise, arguments that the examiner has presented no reason to believe that the invention would not work in other cell types is also more appropriately directed towards an enablement rejection. The instant claims have been rejected for lack of sufficient description of the claimed invention, not for lack of enablement.

While it is true that the specification does recite a number of different cell types in which it is asserted the instant invention can be used, there remains no description of specific embodiments of the claimed invention other than ones featuring E. coli. No description is provided, for example, for tRNA genes corresponding to rarely used codons in plant cells or protozoa, two large classes of cell-types embraced by the claims (i.e. "rarely used codons"). Despite the assertion in applicants' response that numerous tRNA genes are known in the art, the prior art does not appear to provide teachings as to which of the many known tRNA genes correspond to "rarely used" codons for the many different cell types encompassed by the claimed invention. The assertion that codon usages were known in the art at the time of filing is unsupported. The examiner does not question that codon usages were known for some cell types (e.g. E. coli), but there is no evidence of record that rare codon patterns have been established for a sufficient number of cell types for one of skill in the art to be able to envision a sufficient

number of specific embodiments of the invention to describe the very broadly claimed genus. Likewise, there remains no evidence of record to indicate that a sufficient number of tRNA genes obtained from different cell types corresponding to rarely used codons of different cell types were known in the prior art for one of skill in the art to envision a sufficient number of embodiments of the claimed vectors and host cells to describe the broad genus of host cells and vectors encompassed by the rejected claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, 10-16, 22-23 and 26-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Del Tito et al (U) in view of Makoff et al (V). **This rejection is maintained for reasons of record in Paper No. 12, mailed 5/9/01. Applicant's arguments filed in Paper No. 17 have been fully considered but they are not persuasive for reasons given in the Response to Arguments below.**

Claims 6-9, 19, 21 and 24-25 are rejected under 35 U.S.C. 103(a) as being obvious over Del Tito et al (U) in view of Makoff et al (V) as applied to claims 1-5, 10-17, 22-23 and 26-38 above, and further in view of the 1997 Novagen catalog (pages 42-44) (W). **This rejection is maintained for reasons of record in Paper No. 12, mailed 5/9/01. Applicant's arguments filed in Paper No. 17 have been fully considered but they are not persuasive for reasons given in the Response to Arguments below.**

Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being obvious over Claims 6-9, 19, 21 and 24-25 are rejected under 35 U.S.C. 103(a) as being obvious over Del Tito et al (U) in view of Makoff et al (V) and the 1997 Novagen catalog (pages 42-44) (W) as applied to claims 1-17, 19 and 21-38 above, and further in view of Wnendt (X). **This rejection is maintained for reasons of record in Paper No. 12, mailed 5/9/01. Applicant's arguments filed in Paper No. 17 have been fully considered but they are not persuasive for reasons given in the Response to Arguments below.**

Claims 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Del Titto et al (U). **This rejection is maintained for reasons of record in Paper No. 12, mailed 5/9/01. Applicant's arguments filed in Paper No. 17 have been fully considered but they are not persuasive for reasons given in the Response to Arguments below.**

Response to Arguments

In response to the outstanding rejections under 35 U.S.C. 103(a), applicant has submitted a supplemental declaration by Ms. Mary Buchanan (Paper No. 15). In Paper No. 15 Ms. Buchanan indicates that the sales figures presented in her last declaration (Paper No. 10) were based on a period of about 20 months and that during that time there were no competing products (i.e. codon-enhanced host cells) available on the market. Ms. Buchanan further asserts that the only use for their CodonPlus™ cells would be for expression of genes without codon bias problems and that because of this comparing sales figures from expression systems that are not codon optimized would not provide a meaningful background against which to determine commercial success.

Applicant's response continues to argue commercial success as follows: 1) that evidence of commercial success is secondary does not mean that it is secondary in importance, 2) a patentee asserting commercial success as evidence of nonobviousness must demonstrate a sufficient relationship between the commercial success and the patented invention such that the success can be attributed to the invention, 3) Ms. Buchanan demonstrated a nexus between the claimed invention and the evidence of commercial success, 4) there is no other product on the market during the period for which sales figures have been presented and the lack of a reasonable alternative use for the CodonPlus™ cells, other than for the expression of genes with codon bias, along with a higher price relative to the other expression strains makes it so that the gross sales figures are in fact indicative of commercial success, 5) a patentee need not show that all possible embodiments within the claims were successfully commercialized in order to rely on the success in the marketplace of the embodiment that was commercialized.

The examiner has not indicated at any point that an argument of commercial success is not important in determining obviousness.

The crux of applicant's argument appears to be that given the absence of any competition for its product, and given its higher price than equivalent cells lacking codon-enhancement (~44% increase in price), any evidence of sales is indicative of commercial success. This is an inaccurate argument. There remains no meaningful background against which the sales figures presented in Paper No. 10 can be weighed to determine if the demonstrated sales are so indicative of commercial success as to make the claimed invention unobvious.

With regard to a requirement of showing that all possible embodiments of the claimed invention were commercially successful, the examiner has not made or implied such a requirement. What is necessary though, is a showing that the commercial success is commensurate with the claimed invention. As indicated above and in Paper No. 12, applicant has not even described a sufficient number of embodiments sufficient to describe the broadly claimed genus of host cells and vector embraced by the instant claims. A demonstration of commercial success for a couple of specific embodiments useful in E. coli cannot be considered as evidence of nonobviousness commensurate with the full, broadly claimed genus of host cells and vector of the instant invention.

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald G Leffers Jr. whose telephone number is (703) 308-6232. The examiner can normally be reached on 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel can be reached on (703) 305-1998. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7939 for regular communications and (703) 305-7939 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Gerald G Leffers Jr.
Examiner
Art Unit 1636

ggl
March 24, 2002

DAVID GUZO
PRIMARY EXAMINER